

AMENDED CLAIMS AS ANNEXED TO IPER

We claim:

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1. A process for increasing the pelleting stability of a polymer-coated, granulated enzyme-containing feed additive, which comprises

10 (1) processing a mixture comprising a support suitable for feedstuffs and at least one enzyme to form a crude granulate;

15 (2) coating the crude granulate with an organic polymer which is suitable for feedstuffs, by

20 (2a) spraying the crude granulate in a fluidized bed with a melt, a solution or a dispersion of the organic polymer or carrying out in a fluidized bed a powder coating with the organic polymer; or

25 (2b) coating the crude granulate in a mixer with a melt, a solution or a dispersion of the organic polymer or carrying out a powder coating with the organic polymer;

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and if necessary post-drying, cooling and/or freeing from coarse fractions the respective resultant polymer-coated granulate.

30 2. A process as claimed in claim 1 wherein a mixture comprising the support suitable for feedstuff and a solution of at least one enzyme is processed to form a crude granulate by extrusion, mixer-granulation, fluidized-bed granulation, disk agglomeration or compacting.

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3. A process as claimed in one of the preceding claims wherein the moist crude granulate is spheronized before carrying out the polymer coating.

40 4. A process as claimed in one of the preceding claims wherein the granulation and/or polymer coating is carried out continuously or batchwise.

45 5. A process as claimed in one of the preceding claims wherein the crude granulate has a narrow particle size distribution.

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6. A process as claimed in one of the preceding claims wherein the crude granulate is coated with an aqueous or nonaqueous solution or dispersion of the organic polymer.
- 5 7. A process as claimed in claim 6 wherein a from 10 to 50% strength by weight aqueous or nonaqueous solution of at least one polymer is used for the coating, which polymer is selected from the group consisting of
- 10 a) polyalkylene glycols, in particular polyethylene glycols having a number average molecular weight of from 400 to 15,000;
- 15 b) polyalkylene oxide polymers or copolymers having a number average molecular weight of from 4000 to 20,000; in particular block copolymers of polyoxyethylene and polyoxypropylene;
- 20 c) polyvinylpyrrolidone having a number average molecular weight from 7000 to 1,000,000;
- d) vinylpyrrolidone/vinylacetate copolymers having a number average molecular weight from 30,000 to 100,000;
- 25 e) polyvinyl alcohol having a number average molecular weight from 120,000 to 100,000; and
- f) hydroxypropyl methyl cellulose having a number average molecular weight from 6000 to 80,000.
- 30 8. A process as claimed in claim 6 wherein a from 10 to 40% strength by weight aqueous or nonaqueous dispersion or solution of at least one polymer is used for the coating, which polymer is selected from the group consisting of:
- 35 a) alkyl (meth)acrylate polymers and copolymers having a number average molecular weight from 100,000 to 1,000,000; in particular ethyl acrylate/methyl methacrylate copolymers and methyl acrylate/ethyl
- 40 acrylate copolymers; and
- b) polyvinyl acetate having a number average molecular weight from 250,000 to 700,000, possibly stabilized with polyvinylpyrrolidone.
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9. A process as claimed in one of claims 1 to 5 wherein a powder coating is carried out with a powder of a solid polymer which is selected from the group consisting of hydroxypropyl methyl celluloses having a number average molecular weight from 6000 to 80,000; mixed with a plasticizer.
10. A process as claimed in one of claims 1 to 5, wherein a melt of at least one polymer is used for the coating, which polymer is selected from the group consisting of:
- a) polyalkylene glycols, in particular polyethylene glycols, having a number average molecular weight from 1000 to 15,000;
 - b) polyalkylene oxide polymers or copolymers having a number average molecular weight from 4000 to 20,000, in particular block copolymers of polyoxyethylene and polyoxypropylene.
11. The use of a granulated, polymer-coated feedstuff additive that comprises a solid granulated mixture of a support suitable for feedstuffs and at least one enzyme, coated with an organic polymer which is suitable for feedstuffs and selected from the group consisting of:
- a) polyalkylene glycols, in particular polyethylene glycols having a number average molecular weight of from 400 to 15,000;
 - b) polyalkylene oxide polymers or copolymers having a number average molecular weight of from 4000 to 20,000; in particular block copolymers of polyoxyethylene and polyoxypropylene;
 - c) polyvinylpyrrolidone having a number average molecular weight from 7000 to 1,000,000;
 - d) vinylpyrrolidone/vinylacetate copolymers having a number average molecular weight from 30,000 to 100,000;
 - e) polyvinyl alcohol having a number average molecular weight from 20,000 to 100,000; and
 - f) hydroxypropyl methyl cellulose having a number average molecular weight from 6000 to 80,000

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- 5 g) alkyl (meth)acrylate polymers and copolymers having a number average molecular weight from 100,000 to 1,000,000; in particular ethyl acrylate/methyl methacrylate copolymers and methyl acrylate/ethyl acrylate copolymers; and
- 10 h) polyvinyl acetate having a number average molecular weight from 250,000 to 700,000, possibly stabilized with polyvinylpyrrolidone;
- for preparing a pelletized feedstuff composition.
12. The use as claimed in claim 11 wherein it has a mean particle size of from 0.4 to 2 mm.
- 15 13. The use as claimed in claim 11 or 12 wherein it comprises at least one enzyme which is selected from the group consisting of oxidoreductases, transferases, lyases, isomerases, ligases, phosphatases and hydrolases.
- 20 14. The use as claimed in claim 13 wherein the hydrolase is a non-starch-polysaccharide-cleaving enzyme.
- 25 15. The use as claimed in claim 14 wherein the phosphatase is phytase.
16. The use as claimed in claim 15 wherein it comprises from 1×10^3 to 1×10^5 U of phytase per gram of total weight.
- 30 17. A pelleted feedstuff composition which, in addition to customary constituents, comprises at least one feed additive as claimed in one of claims 11 to 16 as admixture.
- 35 18. The use of polymer acceptable as feedstuff as claimed in claim 11 for producing pelleted feedstuff compositions.

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